Water Division Hot Issues Briefing:
Perfluorinated Chemicals

Background

Perfluorinated chemicals (PFCs) consist of a diverse group of man-made compounds characterized by a carbon chain saturated with fluorine atoms. The unique strength and stability of the carbon-fluorine bond makes these chemicals exceptionally resistant to heat, water, and oil; and thus for decades have been used in thousands of industrial and consumer applications. Such uses and products have included carpeting, clothing, upholstery, food paper wrappings, fire-fighting foams, cleaning products, chromium metal plating, semiconductors, and aviation fluids.

The U.S. EPA began studying PFCs in the late 1990s after the Agency received information that PFCs were widespread in the blood of the general U.S. population, and known to be very persistent in the environment, bioaccumulative, and toxic. Recent epidemiological studies have shown an association between PFC exposure and increased risks of developmental effects to fetuses during pregnancy or to breastfed infants, kidney cancer, testicular cancer, high cholesterol, and adverse immune and liver effects.

The most extensively produced and studied of these chemicals are perfluorooctanoic acid (PFOA) and perfluorooctane sulfonate (PFOS). Although industry has eliminated the manufacturing of these chemicals, they are still produced in other locations around the globe, and may continue to be imported into the United States. Additional, legacy issues still exist; thus, environmental contamination and human exposure is expected to continue in the foreseeable future.

Significant Issues/Status

Health Advisories: In May 2016, USEPA set health advisories (HAs) for PFOA and PFOS at 0.07 μg/L (individual and combined) based on lifetime exposure concerns for sensitive subpopulations. The HAs are intended to provide water systems and state, tribal and local officials with information on the health risk of these chemicals, so they can take the appropriate actions to protect their residents. The health advisories are not regulations and EPA does not have national drinking water regulations for PFOA and PFOS.

UCMR3 Data: The concentrations of PFOA, PFOS and several other PFCs were monitored in select PWSs from 2013-2015 under the US EPA's third Unregulated Contaminant Monitoring Rule (UCMR3). Nationwide, 2% of the PWSs had PFOA and PFOS detections and seven R5 PWSs had results above the HAs. Significant media and public attention occurred after the release of the data.

Region 5 Hot Spots:

Minnesota: In 2004, PFCs were first found to have contaminated drinking water supplies in parts of the eastern Twin Cities. From the 1950s through the early 1970s, 3M disposed of PFC manufacturing wastes in Oakdale and Woodbury dump sites, at the 3M manufacturing facility in Cottage Grove, and at the Washington County landfill. A variety of PFCs released from the disposal sites contaminated groundwater and drinking water wells in seven communities, covering an area of nearly 100 square miles. Contamination was widespread and included

aquatic life, soil, groundwater, area lakes and the Mississippi River. Among other things, 3M agreed to pay for treatment, research, and clean-up. MDH initiated a biomonitor program, ATSDR conducted a health assessment, and MPCA lead remediation efforts.

Ohio: PFOA waste from the DuPont's Washington Works facility contaminated portions of West Virginia and Ohio. In March 2009, Regions 5 and 3 jointly issued a revised Emergency Consent Order to DuPont (order issued initially in 2006). DuPont is required to offer connection to a PWS, treatment, or temporary bottled water to people on public or private water systems if the level of PFOA detected in drinking water is above levels of concern.

Wright-Patterson AFB: As a result of UCMR3 monitoring, PFC contamination was discovered in the Wright-Patterson AFB's drinking water. Recently, the OEPA required the base to take two contaminated wells off-line, provide public education to the sensitive populations, and outline permanent treatment options. This is a federal Superfund site.

Oscoda, Michigan: Due to continuous use and improper disposal of fire-fighting foam, PFC contamination at the former Wurtsmith Air Force Base has impacted on-site soils, groundwater, surface water, and some area fish and wildlife. Contaminated groundwater has migrated off the base. Recently, the Michigan Dept. of Health and Human Services issued a health advisory to Oscoda private well owners warning to avoid water use for cooking and drinking. The AFB is in the early stages of remediation and treatment.

Ex. 5 Deliberative Process (DP)

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